

WHAT IS CLAIMED IS:

- 1           1. A fluid pump for pumping liquid, comprising:  
2           a motor housing assembly having an inlet housing, a stator housing  
3           assembly, and an outlet housing;  
4           wherein the stator housing assembly includes a substantially  
5           cylindrical metal case and an encapsulated stator assembly enclosed and sealed by a  
6           polymeric capsule member, and the polymeric capsule member defines a rotor  
7           cavity;  
8           an impeller rotatably positioned in the inlet housing and having an  
9           impeller axis; and  
10          a rotor assembly rotatably located inside the rotor cavity and  
11          connected to the impeller for rotating the impeller for pumping liquid from the inlet  
12          housing to the outlet housing.
- 1           2. The fluid pump of claim 1, wherein the inlet housing and outlet  
2           housing are fastened together to secure the stator housing assembly therebetween.
- 1           3. The fluid pump of claim 1, wherein the metal case includes  
2           liquid flow passages formed therein by diffuser vanes and inner and outer walls of  
3           the metal case, thereby completely defining the liquid flow passages.
- 1           4. The fluid pump of claim 1, wherein the polymeric capsule  
2           member comprises a thermally conductive, electrically insulative material.
- 1           5. The fluid pump of claim 1 wherein the stator housing assembly  
2           further includes a front cover and a rear cover plugging opposing ends of the rotor  
3           cavity.
- 1           6. The fluid pump of claim 5, further comprising inlet diffuser  
2           vanes formed on the front cover.

1               7.     The fluid pump of claim 1, wherein the rotor assembly  
2 includes a rotor with a rotor shaft.

1               8.     The fluid pump of claim 7, wherein the rotor shaft is supported  
2 by a front bearing and a rear bearing.

1               9.     The fluid pump of claim 8, wherein the rear cover contains a  
2 bearing seat for locating the rear bearing.

1               10.    A method of manufacturing an encapsulated stator assembly,  
2 comprising:

3               providing a front cover and a rear cover;

4               providing a hollow, substantially cylindrical metal case with a  
5 longitudinal axis and two open ends;

6               locating a stator assembly within the metal case;

7               temporarily capping the two open ends and encapsulating the stator  
8 assembly in a polymeric material; and

9               uncapping the two ends and attaching the front cover and the rear  
10 cover to the metal case.

1               11.    The method of claim 10, wherein the polymeric material is  
2 thermally conductive and electrically insulative.

1               12.    The method of claim 10, wherein the metal case includes liquid  
2 flow passages formed therein by diffuser vanes and inner and outer walls of the metal  
3 case, thereby completely defining the liquid flow passages.

1               13.    The method of claim 10, wherein the front cover includes  
2 diffuser vanes formed thereon.

1               14.    The method of claim 10, wherein encapsulating the stator  
2 assembly in the polymeric material includes forming a cavity therethrough.

1               15.     The method of claim 14, wherein the front and rear covers are  
2     each configured to receive a bearing to support a shaft disposed within the cavity.